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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,882	07/28/2003	John C. Devine	MER103	5575
20482	7590	02/08/2007	EXAMINER	
GARRISON ASSOCIATES 2001 SIXTH AVENUE SUITE 3300 SEATTLE, WA 981212522			NGUYEN, HANH N	
			ART UNIT	PAPER NUMBER
			2834	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/08/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/629,882	DEVINE, JOHN C.
	<b>Examiner</b> Nguyen N. Hanh	<b>Art Unit</b> 2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on RCE filed on 1/3/07.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3 and 5-9 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3 and 5-9 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 January 2007 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

## DETAILED ACTION

### **Remarks**

1. In view of amendments, the Examiner withdraws the objection to the drawings and the objection to claim 1. The cancellation of claim 4 has been acknowledged.

### **Claim Objections**

2. Claims 5-9 are objected to as being dependent on cancelled claim (claim 4). Appropriate correction is required.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glauning (U.S. Patent No. 6,087,744) in view of Staub et al. (U.S. Patent No. 5,223,757) and further in view of Halimi et al. (U.S. Patent No. 5,605,045).

Referring to claim 1, Glauning teaches in a permanent magnet generator (figure 2), the combination of: a generator housing (36); a stator housing (40) within said generator housing, said stator housing carrying a stator winding (10) and having an outer surface being fitted with external fins (the meander-shaped grooves, line 14 – 18, column 3), said fins surrounded by a sleeve (cooling medium) extending generally axially from front to rear along said stator housing external surface; a stator winding (10) within said stator housing; a hollow shaft (4) rotatably mounted within said stator

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housing, said shaft having an air channel communicating therethrough an inlet end and an outlet end (the arrow air flowing from inlet at end shaft 2 and flowing out from outlet 22, or 32 in figure 2); a fan (28) mounted on said hollow shaft; means (motor) for rotating said shaft; whereby said stator housing is fit within said generator housing such that there is a space (cooling passage 38) between said housings and when said generator is in operation, said fan draws cooling air forward through in said rotor shaft (4) and ejects said air through said space between said stator housing and said generator housing over said stator housing external fins into the atmosphere (the arrows in figure 2, and flowing out through cooling passage medium 32, 38, 22), and thereby cools said generator (line 29 – 36 column 3). Glauning does not teach a cylindrical aluminum sleeve mounted inside the hollow shaft and the shaft carrying permanent magnets which interact with the stator winding.

However, Staub teaches a motor cooling using a liquid cooled rotor (figure 1) having a hollow shaft (7) with a cylindrical aluminum sleeve (27) mounted inside the hollow shaft for good heat transfer through the shaft.

Moreover, Halimi et al. teach a motor cooling system for an electric machine wherein the shaft carrying permanent magnets (62,64,66, 68) which interact with the stator winding for the purpose of reducing the temperature of the electric machine.

Thus, it would have been obvious to one having skill in the art at the time the invention was made to modify Glauning's generator with a cylindrical aluminum sleeve mounted inside the hollow shaft as taught by Staub and using a shaft carrying

permanent magnets which interact with the stator winding as taught by Halimi et al.

Doing so would improve heat removal from the

Regarding claim 2, Halimi et al. also teach in his invention a cooling system with the generator having an air filter to remove the larger physical contaminants (line 36- 37 column 2).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning, Staub; and Halimi et al. as applied to claim 2 above, and further in view of Rakow (U.S. Patent No. 4,358,303).

Regarding claim 3, the combination teaches the claimed invention, except for the added limitation of the air filter is self-cleaning.

Rakow teaches an alternator having a self-cleaning air filter (see claim 1) for keeping the cooling air passages of alternators free of dirt and debris.

Thus, it would have been obvious to one having skill in the art at the time the invention was made to modify the air filter in the generator with a self-cleaning air filter as taught by Rakow. Doing so would keep the alternator free of dirt and debris.

5. Claims 5, 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning, Staub and Halimi et al. as applied to claim 1 above, and further in view of Nilson (U.S. Patent No. 6,661,145 B1).

Regarding claims 5 and 7, the combination substantially teaches the claimed invention, except for the added limitation of the magnets are held in place by a plurality of magnet retention rings (or metal ring as recited in claim 5) that are configured to

secure said magnets to said shaft, said retention rings being fitted around said shaft and threadably connected to said shaft.

However, Nilson teaches a rotor for a high speed permanent magnet motor having permanent magnets (21) mounted on a shaft (20) by a plurality of magnet retention rings (24, 25) that are configured to secure said magnets to said shaft, said retention rings being fitted around said shaft and connected to said shaft (by nut 28 through thread 29).

Thus, it would have been obvious for one having skill in the art at the time the invention was made to modify the generator with magnet retention rings as taught by Nilson. Doing so would secure the magnets to the shaft and obtain the highest possible pre-tension of the magnets.

Regarding claim 8, Nilson teaches the generator wherein said magnets (21) include a plurality of permanent magnets arranged in a plurality of rows that extend around the circumference of said shaft (figure 4) and said magnets are further held in place by at least one magnet spacer ring (23) that is configured to fit between two of said rows and secure said magnets to said shaft, and said spacer ring being fitted around said shaft (figure 2).

Regarding claim 9, Nilson teaches the generator wherein said magnets include a plurality of permanent magnets (21) arranged in rows that extent around the circumference of said shaft, said magnets being placed such that the opposite poles of adjoining magnets face each other the generator further comprising interpole spacers

(23) placed between adjoining magnets; and said interpole spacers being threaded connected to said shaft (figure 4).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning, Staub, Halimi et al., Nilson and further in view of Julien.

Regarding claim 6, the combination of Glauning, Staub, Halimi et al. and Nilson substantially teaches the claimed invention, except for the added limitation of the metal ring is Nitinol 60.

However, Julien discloses an improved protective coating on metal component using Nitinol 60 (Col. 5, lines 55-58) for the purpose of providing hard wear surface.

Thus, it would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Glauning, Staub, and Nilson by using Nitinol 60 for the shaped metal alloy as taught by Julien for the purpose of providing hard wear surface.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

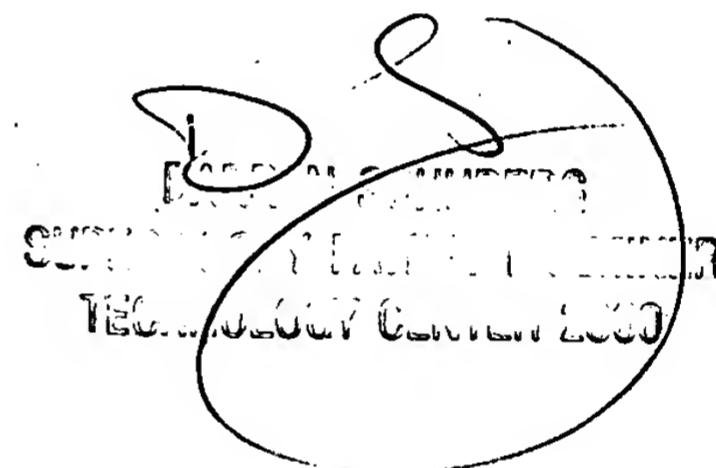
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

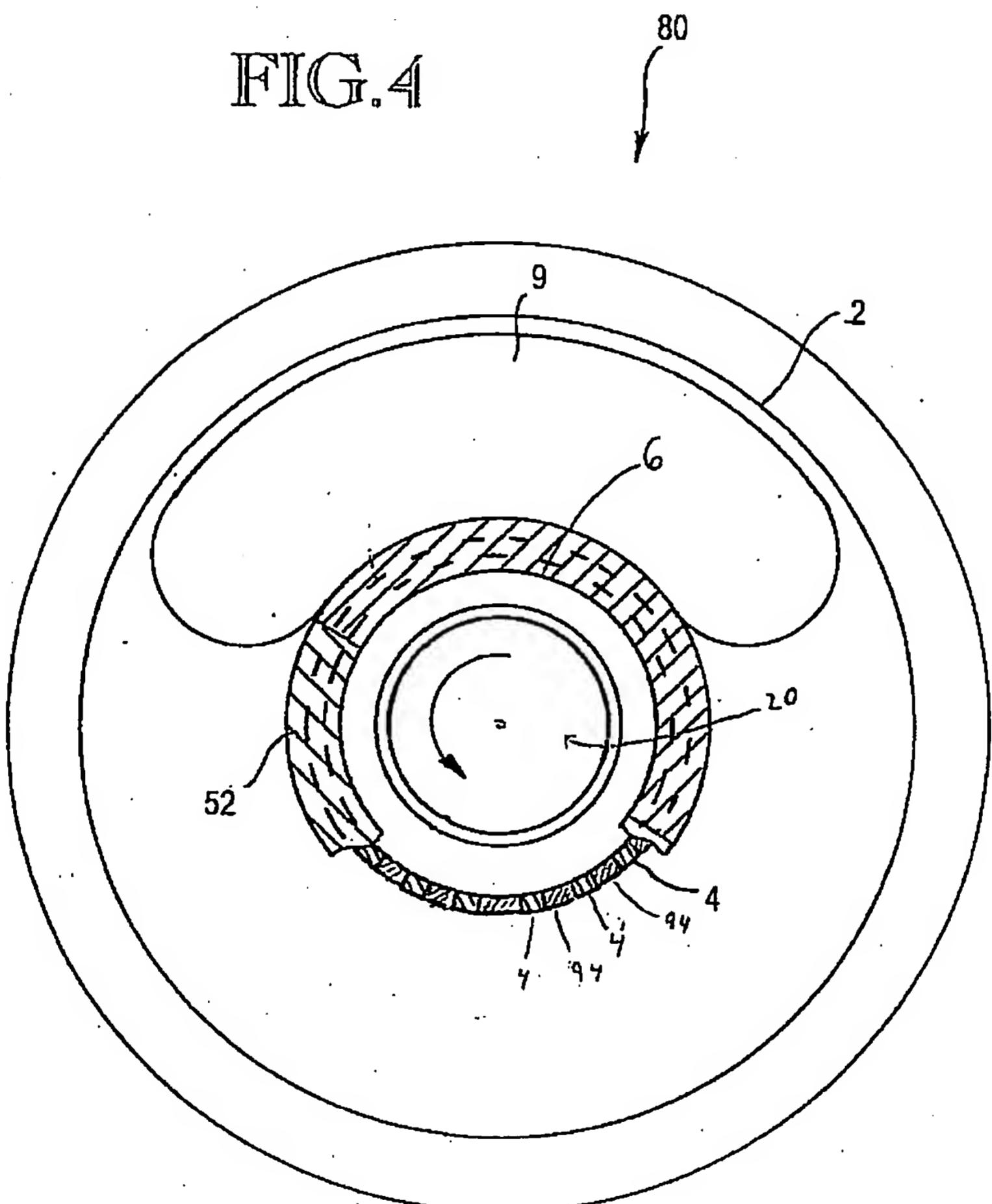
January 29, 2007



Application No. 10/629,882  
Response dated January 4, 2007  
Reply to Ex. Amendment dated October 6, 2006  
**REPLACEMENT SHEET - FIG. 4**

Approved by Examiner  
HNN  
1/29/07

FIG.4



Approved by Examiner  
HNN  
1/29/07

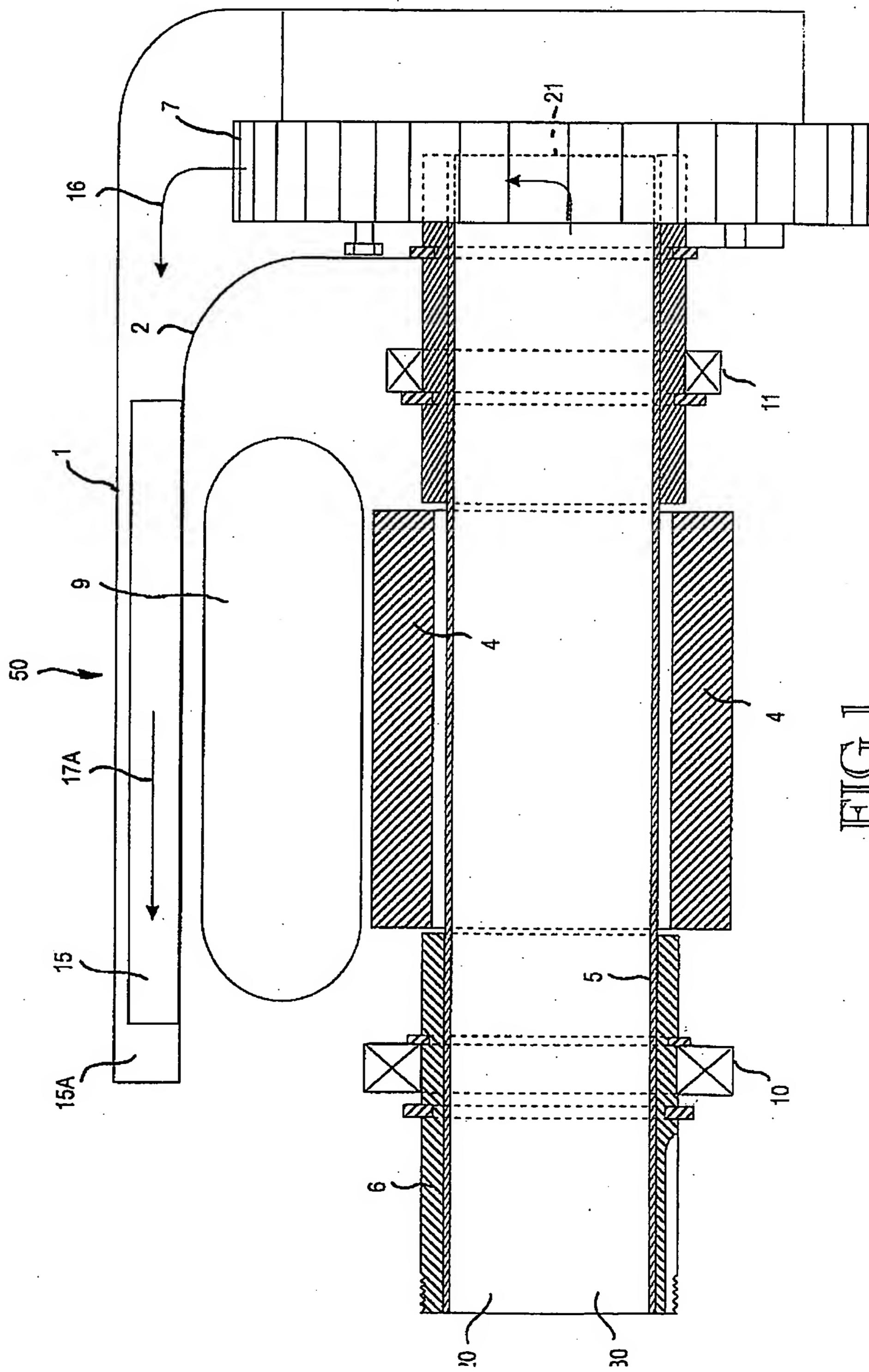


FIG. 1

Approved by Examiner  
HNN  
1/27/07

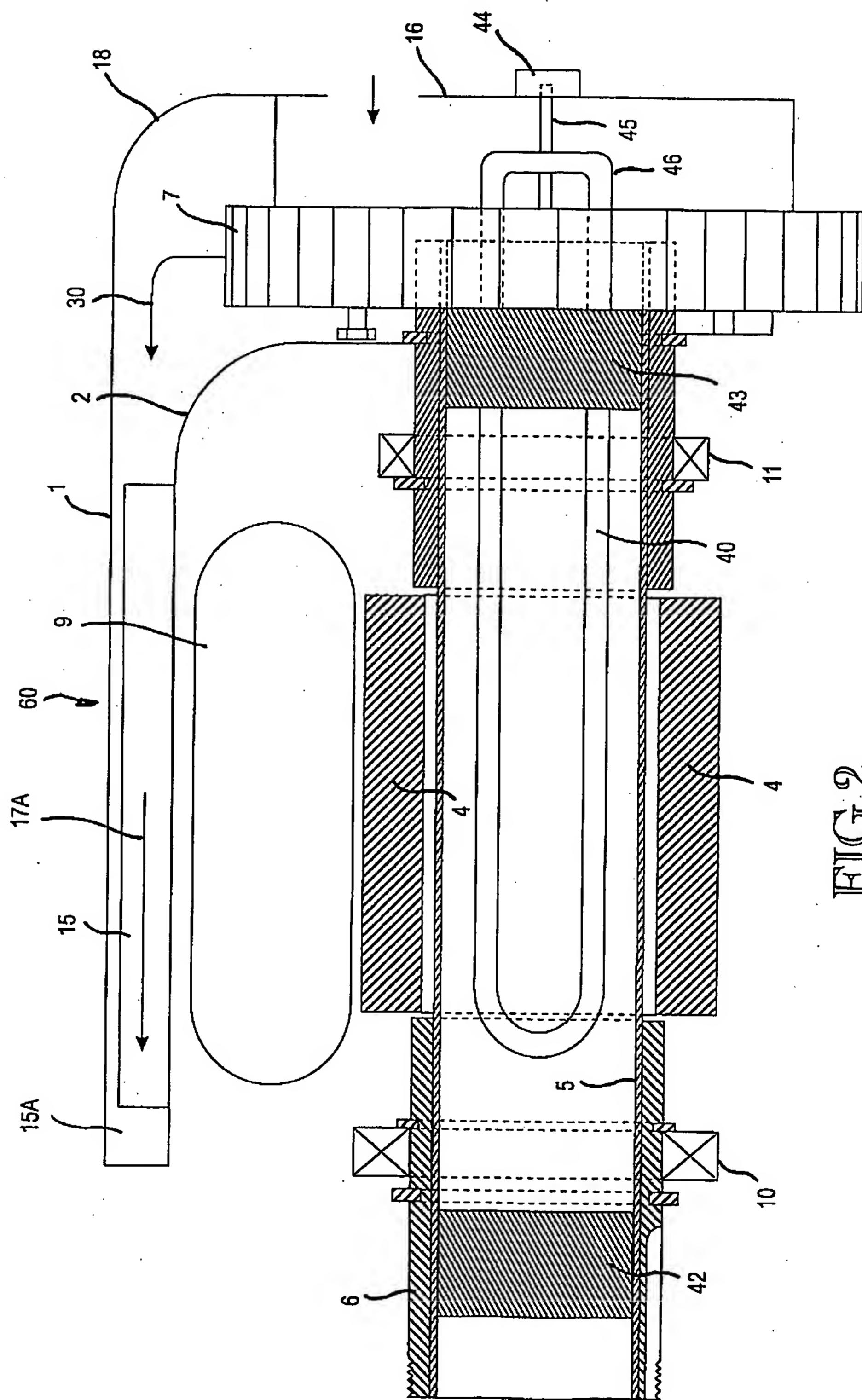


FIG. 2

Approved by Examiner  
HNN  
1/29/07

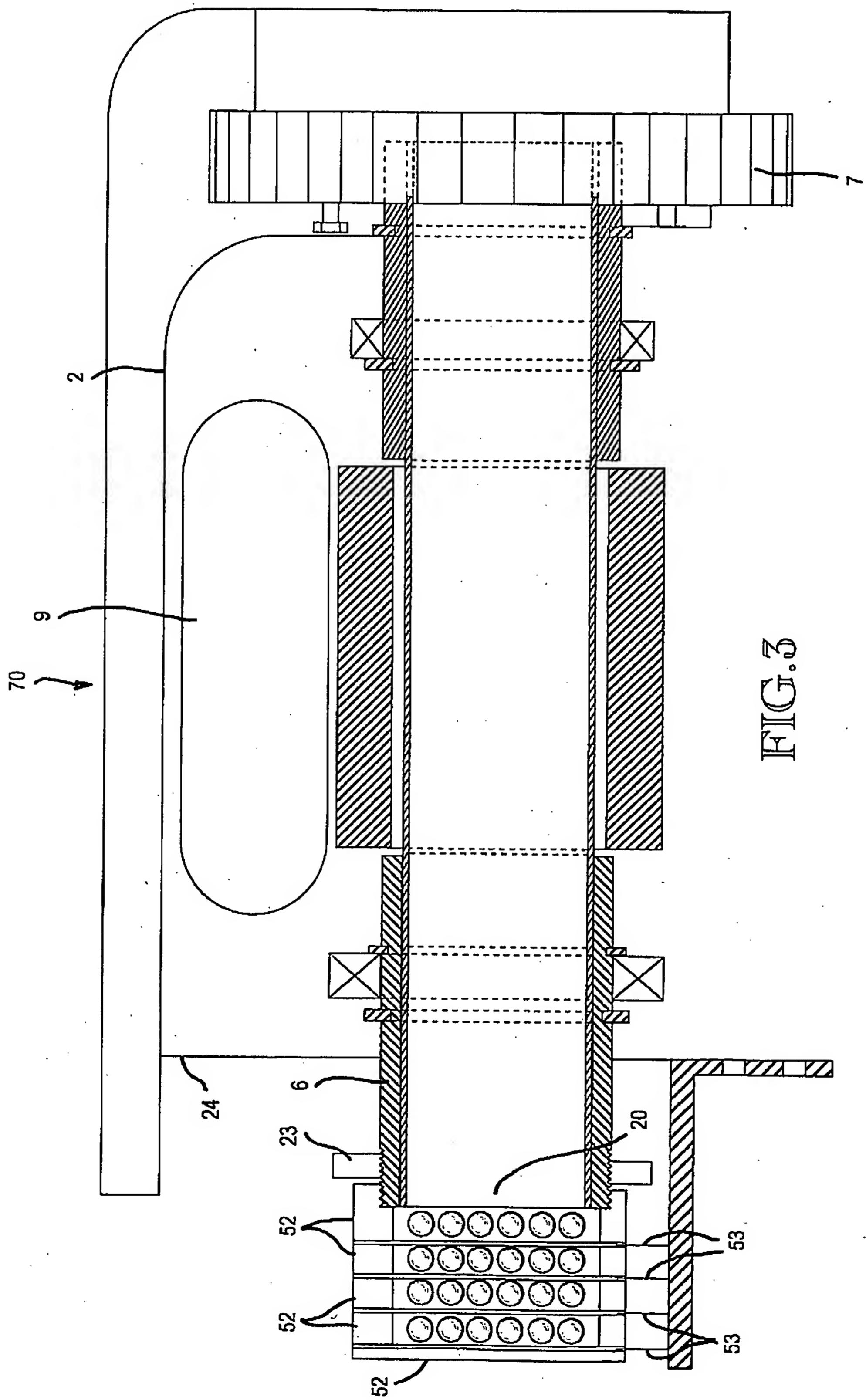


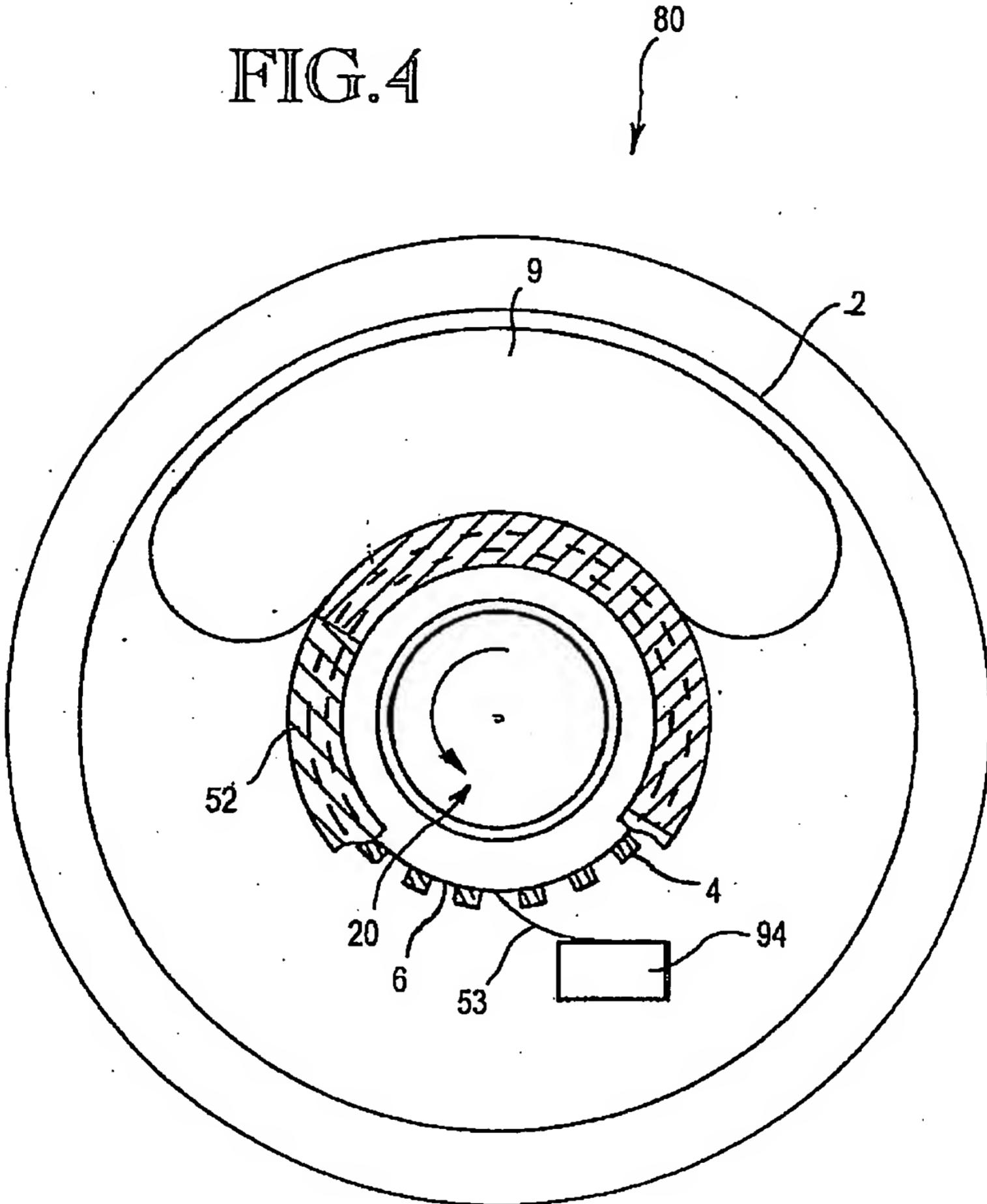
FIG. 3

Not approved by  
Examiner.

HNN

1/29/07

FIG.4



Approved by Examiner  
HNN  
1/29/07

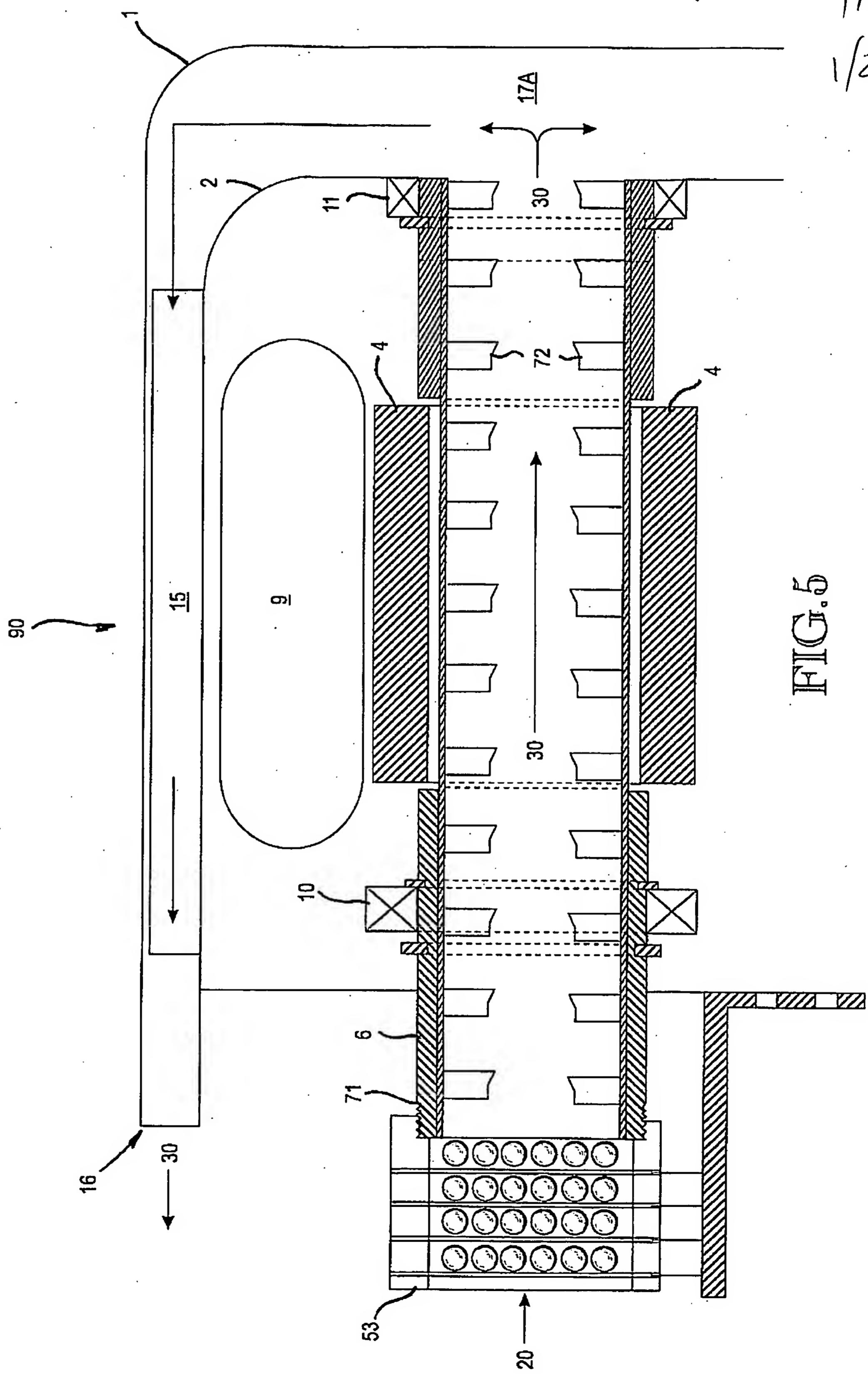


FIG. 5

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HN/N  
1/29/07

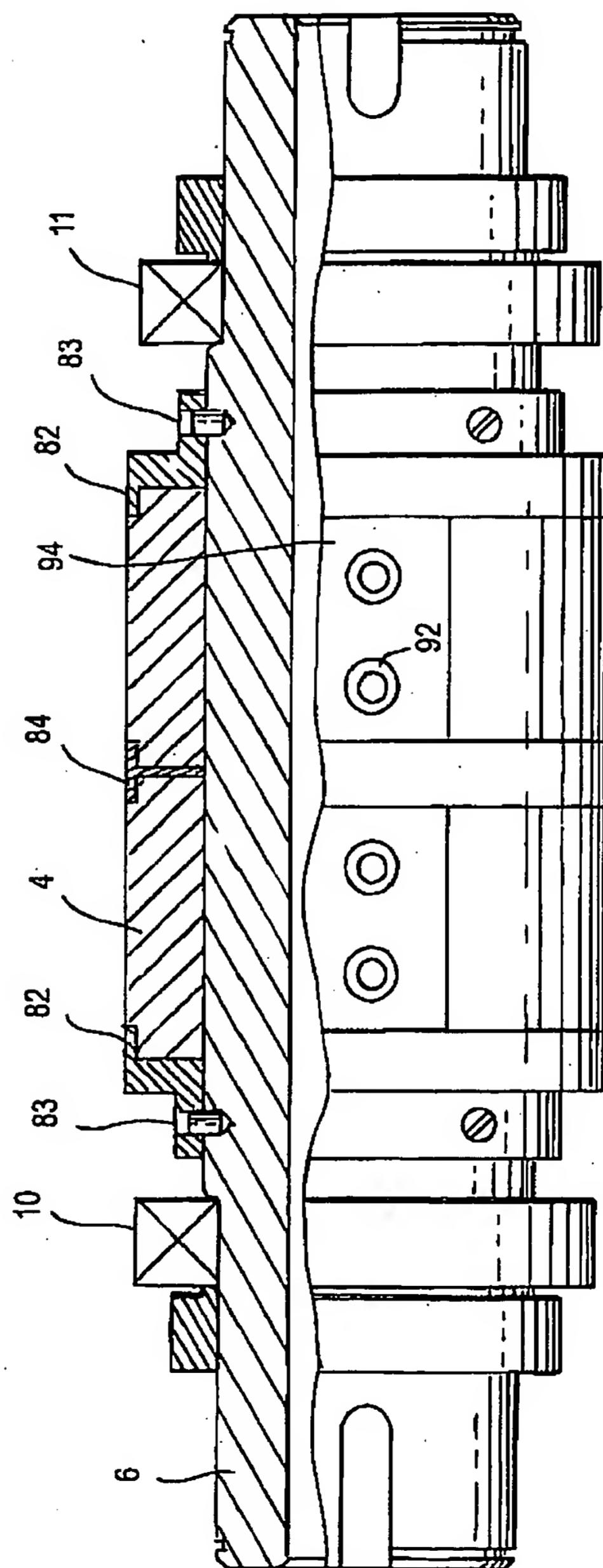


FIG. 6